



Case report

Fatal aorto-esophageal fistula in child: A case report



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ABSTRACT

Esophageal foreign body ingestion is especially frequent in childhood and may cause fatal complications in case of late diagnosis and delayed treatment. We present a case of 2-year old girl who was admitted to emergency department with massive bleeding. However, she died due to an unrecognized foreign body resulted an aorto-esophageal fistula.

At autopsy an aorto-esophageal fistula was detected by gross examination. Tissue samples were obtained from the organs and fistula region. In histopathological examination, a calcified body with multinucleated giant cell and surrounding granulation tissue was detected at the bleeding site. An ulcerated fistula tract ran from the intima to the adventitia, passing through layers of esophageal wall was also noticed.

The mortality rate for foreign body ingestion is less than 1%, except in cases of perforation. Therefore the presented case is among rare examples of fatal foreign body ingestions.

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1. Introduction

Esophageal foreign bodies are a common and potentially serious cause of morbidity and mortality in children. The diagnosis and management of foreign body ingestion is not a major clinical problem. However, the clinical diagnosis of occult esophageal foreign bodies can be difficult and result in serious complications.^{1–4}

Esophageal penetration associated with foreign body ingestion is rare, with a reported incidence of 1–4%.⁵ The mortality rate of foreign body ingestion is less than 1%, if diagnosed at the time of perforation.^{6–8} In this report, a case of fatal aorto-esophageal fistula caused by foreign body ingestion is presented.

2. Case

A 2 years-old girl was admitted to the emergency department with hematemesis. Despite medical intervention she could not be

rescued. According to her clinical history, she suffered from stomach ache a week ago, and she was treated symptomatically for suspected influenza infection.

The autopsy was performed at the Mortuary of Ankara Office of the Council of Forensic Medicine.

On gross examination during autopsy an aorto-esophageal fistula (1.5 × 1 cm) was detected (Fig. 1). Tissue samples were obtained from the organs and fistula/bleeding site during autopsy. After tissue processing, H&E stained slides were evaluated with light microscopy. Histopathological evaluation revealed a calcified body with multinucleated giant cells and surrounding granulation tissue. In addition, an ulcerated fistula tract running from intima to adventitia, passing through all layers of the esophageal wall was also detected (Figs. 2a, 2b, 2c and 3). Microscopic sections of other internal organs showed no pathology except congestion.

3. Discussion

Although retained esophageal foreign bodies might be found throughout childhood, they are more common in infants (>2 years old).⁴ Esophageal foreign bodies adhere primarily within the

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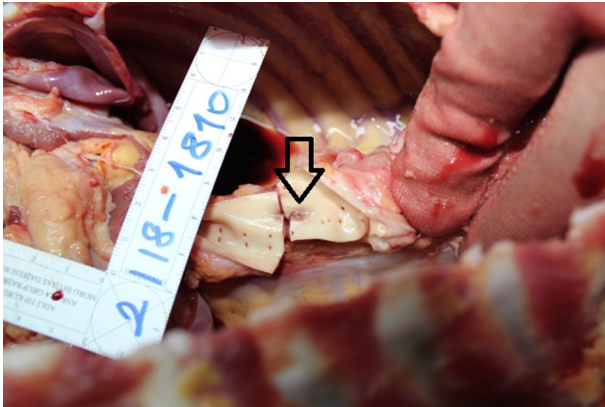


Fig. 1. Ulcerated fistula tract.

cervical portion of esophagus. In the presented case, a foreign body was detected in portion of the esophagus that is the second most common site of foreign body adherence.⁹

Macpherson et al.⁴ reported that out of all esophageal foreign bodies 84% were not food materials; of these 69% were coins, 11% were other metallic objects, and 3% were nonopaque foreign

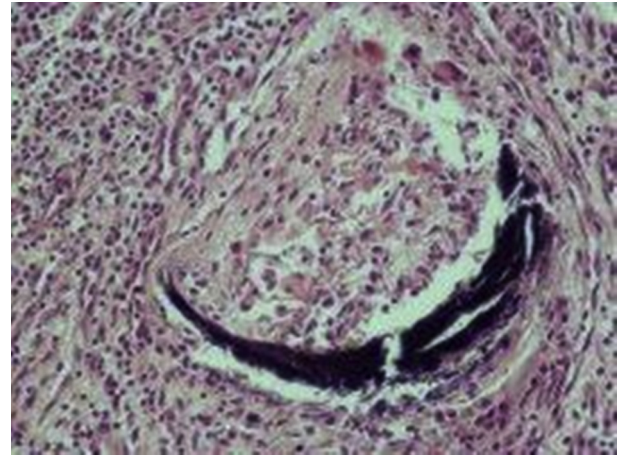


Fig. 2c. Calcificated body with multinucleated giant cell and granulation tissue around (HE ×200).

bodies. Of all foreign bodies 16% were food, of which 12% was nonopaque and 4% was opaque materials.

When the major symptoms are compared according to the interval between ingestion and clinical presentation, Macpherson et al. noted that gastrointestinal symptoms predominate in foreign body retentions with shorter duration, while respiratory symptoms were more frequent in retentions with longer duration of time.⁴ Esophageal perforation resulting from foreign body ingestion is uncommon, which is reported to be caused by an initial impaction with a foreign body and then a combination of local esophageal wall inflammation with direct pressure necrosis.¹⁰ Perforation of the esophagus by a foreign body usually results in a dramatic clinical picture characterized by odynophagia, dysphagia, respiratory distress, vascular injury and fever.^{10,11} Complications of retained esophageal foreign bodies that are primarily related to perforation of the esophagus by the foreign body include mediastinitis with or without abscess, esophagus-to-airway fistulas, esophagus-to-vascular fistulas, extra luminal migration of the foreign body, and false esophageal diverticula. Prolonged retention with obstruction is the cause of true esophageal diverticula.^{4,10}

Plain films of the neck and chest can identify radiopaque foreign bodies in the esophagus, but they have proven to be unsatisfactory for detecting ingested nonopaque foreign bodies. Barium studies also seem to be ineffective in detecting ingested nonopaque foreign

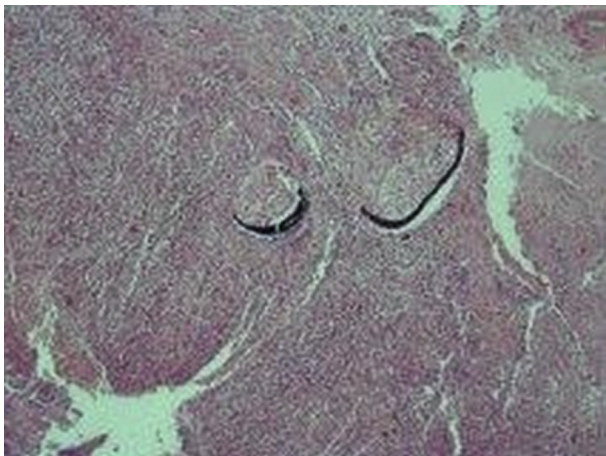


Fig. 2a. Calcificated body with multinucleated giant cell and granulation tissue around (HE ×40).

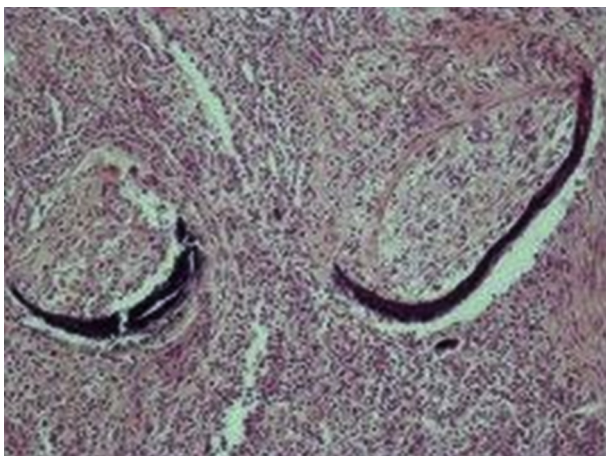


Fig. 2b. Calcificated body with multinucleated giant cell and granulation tissue around (HE ×100).



Fig. 3. Fistula tract on aorta (HE ×100).

bodies. Computed tomographic (CT) scan is a simple and reliable method for diagnosing esophageal impaction with nonopaque materials, and may decrease the rate of unnecessary esophagoscopies.¹² Unusual foreign bodies (like a fish bone) may follow an atypical tract and might not be detected by chest radiograph or CT scan. It has been reported that once a perforation has been confirmed, a dynamic contrast computed tomogram or archaortogram is essential to exclude vascular involvement.¹³ Esophagoscopy is suggested as the safest method for esophageal foreign body removal in infants and children.⁴

4. Conclusion

Aorto-esophageal fistulas are an uncommon yet well documented complication that usually results from the ingestion of a sharp object, but that can also occur as a result of erosion of the esophageal wall by blunt foreign bodies after prolonged retention.⁴ Unfortunately in our case, the patient dies as a result of massive bleeding from an undiagnosed fistula. A high mortality in the patients with esophageal foreign body perforation results from the lack of clinical suspicion and the late initiation of treatment.

Ethical approval

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Conflict of interest

None declared.

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